

The Complex of *Trechiamma fujitai* (Coleoptera, Trechinae) from Hyôgo Prefecture, West Japan (I)

—Two New Species from the Maruyama-gawa Drainage Area—

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Abstract Two new anophthalmic species of the *fujitai* complex in the group of *Trechiamma oni* were found from the drainage area of the Maruyama-gawa River, which flows from the central part of Hyôgo Prefecture to the Sea of Japan. They are described as follows: *T.* (s. str.) *latilobatus* ASHIDA, sp. nov. from the eastern side of the upper part of the Maruyama-gawa River, and *T.* (s. str.) *oja* ASHIDA, sp. nov. from the drainage areas of the Akenobe-gawa and the Ôya-gawa, both being tributaries of the Maruyama-gawa. New records of *T.* (s. str.) *cuspidatus* S. UENO are also provided from the drainages of the Mikobata-gawa and Sanaka-gawa, which are branches of the Maruyama-gawa.

Trechiamma is one of the most diversified trechine genera in Japan. The group of *T. oni* occurring in western Japan consists of approximately forty species and is now classified into nine species-complexes (UENO, 1985 a, 1987, 2000; ASHIDA, 2002 a, b). In Hyôgo Prefecture, three complexes show parapatric distribution: namely the *fujitai* complex in the western part, the *kosugei* complex in the eastern part, and the *notoi* complex in the northeastern part. No overlapping zone of these complexes is so far known and instead many blanks still remain around boundary areas.

Energetic field investigations made by Mr. Akinao SOUMA and other members of the Kansai Trechine Research Group in the blank areas of Hyôgo Prefecture brought forth number of findings. In this paper, I am going to deal with the species belonging to the *fujitai* complex from the drainage area of the Maruyama-gawa River flowing from the central part of Hyôgo to the Sea of Japan.

The abbreviations used herein are the same as those in my previous papers (ASHIDA, 2002 a, b).

Trechiamma (s. str.) *latilobatus* ASHIDA, sp. nov.

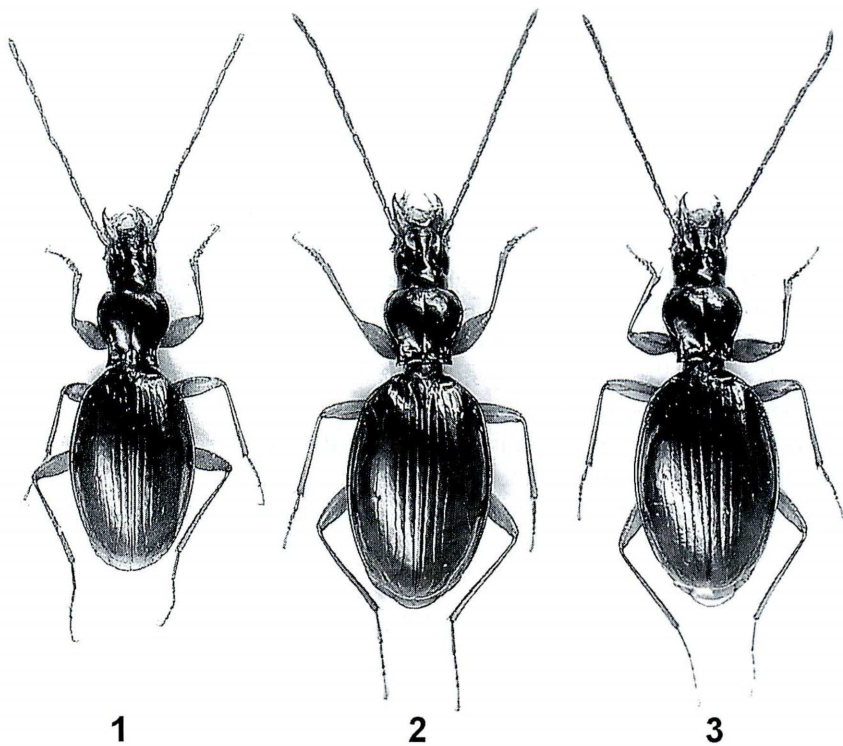
(Figs. 1, 4–7)

Length: 4.80–5.45 mm (from apical margin of clypeus to apices of elytra).

Readily distinguished from all the members of the group of *T. oni* by extremely compressed aedeagus with wide and flat apical lobe and a small but sclerotized copula-

tory piece in the inner sac. Externally similar to *T. silicicola* S. UÉNO (1981, p. 79, figs. 1–4) from Otogawachi in Ichijima-chô, a member of the *kosugei* complex of the group of *T. oni*, with relatively small body, pronotum lacking postangular setae, and regularly oval elytra, though judging from the shape of male genital organ, most likely belonging to the *fujitai* complex because of sharing some common features in aedeagus with *T. cuspidatus* S. UÉNO (1985 a, pp. 168, 173, figs. 5–6) from Takinoya in Yabu-chô.

Color yellowish brown with light-colored appendages, usually lighter than in the other upper hypogean species of the group of *T. oni*. Head slender, a little longer than width; genae slightly convex; antennae slender, reaching the middle of elytra; eyes completely disappearing; mandibles fairly long, sharply hooked at apices. Pronotum subcordate, a little longer than width, widest at two-thirds from base; PW/HW 1.34–1.49 (M 1.42), PW/PL 1.00–1.10 (M 1.04), PW/PA 1.34–1.49 (M 1.41), PW/PB 1.29–1.45 (M 1.38), PB/PA 0.95–1.08 (M 1.02); sides strongly arcuate in front, deeply sinuate at basal fourth, and then divergent again towards hind angles, which are sharp and protrude postero-laterad; postangular setae absent; base markedly emarginate at middle; front angles obtuse; surface moderately convex though more or less depressed on the disc. Elytra ovate, relatively slender, widest at about middle; EW/PW 1.67–1.82

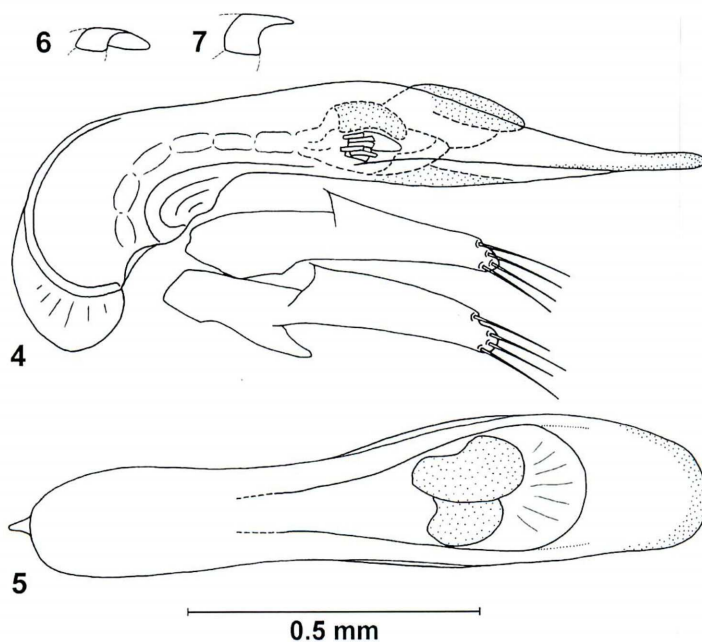


Figs. 1–3. *Treichiama* (s. str.) spp., ♂, dorsal views: *T. latilobatus* ASHIDA from Tataragi in Asago-chô (1); *T. oja* ASHIDA from Akenobe in Ôya-chô (2); *T. cuspidatus* S. UÉNO from Mikobata in Asago-chô (3).

(M 1.73); EL/PL 2.50–2.75 (M 2.67); EL/EW 1.45–1.51 (M 1.49); shoulders effaced, with prehumeral borders moderately oblique; sides regularly rounded towards apices; striae relatively shallow, especially in striae 6, 7 and 8; setiferous dorsal pores on stria 5 located at $1/7$ – $1/6$ and $3/5$ – $2/3$ from base, respectively. Legs as in the other species of the *fujitai* complex.

Male genital organ large, elongate and heavily sclerotized. Aedeagus two-fifths as long as elytra, heavily compressed, and almost straight except for strongly curved basal part; basal orifice small, with the sides emarginate; sagittal aileron very large though hyaline; viewed laterally, middle part slightly convex on dorsum, then gradually narrowed towards apical tip, which is thin and flat; viewed dorsally, apical lobe gradually dilated, widest at apical fourth, then feebly narrowed apicad, with wide and regularly rounded apex; viewed ventrally, apical lobe longitudinally convex behind apex. Inner sac armed with a teeth-patch, a small copulatory piece and two large plates; teeth-patch small, formed by fairly long teeth, lying on the left side at about middle of aedeagus; copulatory piece lightly sclerotized, lying at the right side of teeth-patch, one-eighth as long as aedeagus, rolled ventrad, with the front margin deeply emarginate and projected ventro-posteriad at right-apical corner; two large plates covered with minute scales at the dorsal side of apical orifice. Styles long and nearly straight; left one slightly longer than the right, each bearing four setae at apex.

Type series. Holotype: ♂, allotype: ♀, 21–IV–2002, H. ASHIDA leg. Paratypes:



Figs. 4–7. Male genitalia of *Trechiana* (s. str.) *latilobatus* ASHIDA from Tataragi in Asago-chô; left lateral view (4), dorsal view (5), and separated copulatory piece, lateral (6) and dorsal (7) views.

6♂♂, 1♀, 10–XII–2000, A. SOUMA leg.; 5♂♂, 1♀, 3–V–2001, S. YAMASHITA, K. ITÔ & Y. OKUDA leg.; 2♂♂, 1♀, 21–IV–2002, H. ASHIDA leg.; 1♂, 25–V–2002, A. SOUMA leg.; 2♂♂, 2♀♀ (incl. 1♀ teneral), 13–VII–2003, H. ASHIDA leg.; 1♂, 3–VIII–2003, H. ASHIDA leg. The holotype and allotype are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type locality. Tataragi (280 m alt.), Asago-chô, Hyôgo Prefecture, West Japan.

Further records. 2♂♂, 3♀♀, Kurogawa (550 m alt.), Ikuno-chô, Hyôgo Prefecture, 31–V–2003, A. SOUMA leg.; 1♀, Ginzanko (400 m alt.), Ikuno-chô, Hyôgo Prefecture, 2–V–2002, T. SAITÔ leg.;

Etymology. The specific epithet of this species refers to the shape of the aedeagal apical lobe, which is wide and flat.

Notes. At first glance, the external morphology of the present species is similar to that of *T. silicicola*, a member of the *kosugei* complex, which lacks postangular setae on the pronotum exceptionally in the *kosugei* complex and has a relatively small body with oval elytra. However, the male genitalia of *T. latilobatus* do not show any similarities to those of the *kosugei* complex, but have some common features with those of such members of the *fujitai* complex as *T. cuspidatus*; namely, broad apical lobe, very lightly sclerotized copulatory piece, two large plates on apical orifice, and so on. Thus the present species must be a peculiar offshoot of the *fujitai* complex.

The type population was found in two gullies facing the northeastern and south-eastern shores of the Tataragi Reservoir constructed on an eastern branch of the upper part of the Maruyama-gawa River. The gullies are mostly covered with rock debris of granite, which is usually unfavorable for harboring upper hypogean trechine beetles, though the type specimens were dug out from the bottom of colluvia at a depth of about 60–100 cm. The third locality is a gully at the southwestern side of the Kurogawa Reservoir, which is in the upper course of the Ichi-kawa River emptying into the Inland Sea of Seto-naikai, and is 2.5 km distant to the east from the type locality. Although these artificial lakes were constructed on two quite different drainages, they are near to each other and are divided by a ridge with gentle slopes, so that the upper hypogean trechine beetle might be able to cross it. Only one female specimen which seems to be *T. latilobatus* was collected from a gully at the northeastern side of the Ginzanko Reservoir, which is on the same river below the Kurogawa Dam. In this gully, the present species coexists with a species of the other lineage of *Trechima*, which is undescribed and may belong to the *kosugei* complex.

All the known localities of this species lie on the eastern side of the Maruyama-gawa/Ichi-kawa line. Since previously known species of the *fujitai* complex are all from the western side of that line, *T. latilobatus* is the first species of the complex occurring on the eastern side, and thus the easternmost species of that complex. Tataragi, the type locality of this species, is about 12 km southeast of Takinoya, the type locality of *T. cuspidatus*; about 11 km east-northeast of Mt. Darugamine in Ikuno-chô (ASHIDA, 1997), the northernmost known locality of *T. crassilobatus* S. UENO, 1977; about 24 km west by north of Otogawachi, the type locality of *T. silicicola*; and 14 km north

of Ôhata in Kanzaki-chô, that of *T. obliquus* S. UÊNO, 1985.

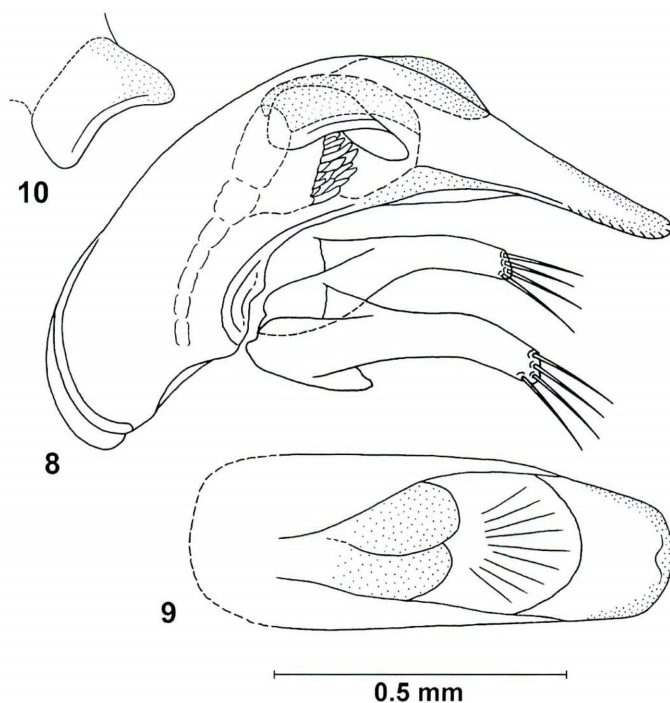
***Trechiana* (s. str.) *oja* ASHIDA, sp. nov.**

(Figs. 2, 8–10)

Length: 5.35–5.95 mm (from apical margin of clypeus to apices of elytra).

Closely related to *T. cuspidatus* S. UÊNO (1985 a, pp. 168, 173, figs. 5–6) from an abandoned mine adit at Takinoya of Yabu-chô, Hyôgo Prefecture, though clearly distinguished from the latter species by the configuration of aedeagal apical lobe whose ventral surface is hardly concave. Also similar to *T. moritai* S. UÊNO (1985 a, pp. 168, 170, figs. 1–2) from the Wakasugi-tôge in Nishi-awakura-son, Okayama Prefecture, and *T. spinulifer* S. UÊNO (1985 a, pp. 168, 172, figs. 3–4) from an abandoned mine adit at Nakase of Sekinomiya-chô, Hyôgo Prefecture, though discriminated from those species by the structure of aedeagal apical lobe and by arming a sclerotized copulatory piece in the inner sac.

Externally very similar to *T. cuspidatus*, though the body is a little slenderer, in particular with narrower pronotal base. PW/HW 1.35–1.47 (M 1.42), PW/PL 1.06–1.18 (M 1.11), PW/PA 1.40–1.47 (M 1.43), PW/PB 1.39–1.45 (M 1.42), PB/PA 1.00–



Figs. 8–10. Male genitalia of *Trechiana* (s. str.) *oja* ASHIDA from Akenobe in Ôya-chô; left lateral view (8), apical part of aedeagus, dorso-apical view (9), and separated copulatory piece, dorsal view (10).

1.03 (M 1.01), EW/PW 1.70–1.83 (M 1.78); EL/PL 2.79–3.00 (M 2.87); EL/EW 1.43–1.48 (M 1.45).

Male genital organ robust and moderately sclerotized. Aedeagus similar in profile to that of *T. moritai*, one-third as long as elytra, arcuate though somewhat compressed, with broad apical lobe, which is thicker than in *T. moritai*, and thinner than in *T. spinulifer*; viewed ventrally, undersurface of apical lobe neither concave nor file-like unlike those of *T. cuspidatus* and *T. spinulifer*. Inner armature similar to that of *T. cuspidatus*; left lateral teeth-patch consisting of compact spinules; copulatory piece lying at the right dorsal side of left lateral teeth-patch, one-fourth as long as aedeagus, lamellar, very lightly sclerotized though usually more heavily than in *T. cuspidatus*, subtetragonal and rolled ventrad, with emarginate left apical margin and obtusely projected right apical corner.

Type series. Holotype: ♂, allotype: ♀, 27–VII–2003, H. ASHIDA leg. Paratypes: 2♀♀, 22–IV–2001, A. SOUMA leg.; 4♂♂, 2♀♀, 29–IV–2001, A. SOUMA leg.; 3♂♂, 3–V–2001, S. YAMASHITA leg.; 1♂, 4♀♀, 21–VII–2003, H. ASHIDA leg.; 9♂♂, 9♀♀, 27–VII–2003, A. SOUMA, Y. OKUDA, S. YAMASHITA, K. ITÔ & H. ASHIDA leg.; 2♂♂, 1♀, 3–VIII–2003, S. NAKAMURA leg. The holotype and allotype are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type locality. Fudono-dani (340 m alt.) in Akenobe, Ôya-chô, Hyôgo Prefecture, West Japan.

Further records. 2♂♂, 2♀♀, Tendaki Valley (400–500 m alt.), Ôya-chô, Hyôgo Prefecture, 22–X–2000, A. SOUMA & S. YAMASHITA leg.; 1♂, same locality, 29–X–2000, A. SOUMA leg.; 3♂♂, 3♀♀, same locality, 28–IV–2002, A. SOUMA & S. YAMASHITA leg.; 2♂♂, 4♀♀, same locality, 27–VII–2003, A. SOUMA, Y. OKUDA, S. YAMASHITA, K. ITÔ & H. ASHIDA leg.; 2♀♀, Yokoyuki Valley (450–550 m alt.) on the southeastern slope of Mt. Hyônosen (1,510 m in height), Ôya-chô, Hyôgo Prefecture, 25–VI–2000, A. SOUMA & S. YAMASHITA leg.; 3♀♀, same locality, 15–VIII–2000, A. SOUMA & S. YAMASHITA leg.; 1♂, 20–VIII–2000, A. SOUMA leg.; 4♂♂, 1♀, 16–VI–2002, A. SOUMA leg.; 3♂♂, 4♀♀, same locality, 27–VII–2003, A. SOUMA, Y. OKUDA, S. YAMASHITA, K. ITÔ & H. ASHIDA leg.;

Etymology. The specific name is derived from the town name, Ôya, in which lie the known localities of this species.

Notes. Since the copulatory pieces are usually very poorly sclerotized in the *fujitai* complex, they have not been well documented so far, but a close dissecting study revealed their usefulness for classification. At first sight the present species seems to be a close relative of *T. moritai* because of having a very similar shape of aedeagus, though its copulatory piece is much larger and darker in color than in *T. moritai* and is rather similar to that of *T. cuspidatus*. Therefore, this species might have a direct relationship with the latter species.

All the known localities of *T. oja* are in the drainage areas of the Ôya-gawa River and its branch Akenobe-gawa, which are tributaries of the Maruyama-gawa. In all localities, the trechines were dug out from the upper hypogean habitat. Fudono-dani, the

type locality of the present species lies at the source of the Akenobe-gawa, and is about 8 km southwest of Takinoya, the type locality of *T. cuspidatus*, and about 6 km north-west of the Kasasugi-tôge, the second locality of the latter species (see below). The Tendaki Valley is about 8 km north-northwest of Akenobe, and is only 3.5 km apart to the south from Nakase in Sekinomiya-chô, the type locality of *T. spinulifer*. Tendaki and Nakase lie on the opposite sides of the ridge, namely, Nakase is at the side of the Yagi-gawa River, while Tendaki in the drainage of the Ôya-gawa, though the two rivers join at the lower part and flow into the Maruyama-gawa. The Yokoyuki Valley lies on the southeastern slope of Mt. Hyônosen, which is near the riverhead of the Ôya-gawa. It is about 6 km west of Tendaki, about 9 km west-northwest of Akenobe, and about 16 km northeast of the Wakasugi-tôge, the type locality of *T. moritai*.

Trechiamma (s. str.) *cuspidatus* S. UENO, 1985

(Fig. 3)

Trechiamma (s. str.) *cuspidatus* S. UENO, 1985, Mem. natn. Sci. Mus., Tokyo, (18), pp. 168, 173, figs. 5–6; type locality: Okuyama of Takinoya in Yabu-chô.

Additional records. 1 ♀, Takinoya (200 m alt.), Yabu-chô, Hyôgo Prefecture, 10–X–1998, Y. OKUDA leg.; 1 ♂, same locality, 15–IV–2000, S. TANAKA leg.; 5 ♂♂, 4 ♀♀, same locality, 20–IV–2002, Y. OKUDA, T. SAITÔ & S. TANAKA leg.; 2 ♂♂, 1 ♀, same locality, 28–IV–2002, H. ASHIDA leg.; 1 ♂, Kasasugi-tôge (400 m alt.) near Mikobata, Asago-chô, Hyôgo Prefecture, 15–IV–2001, A. SOUMA leg.; 3 ♂♂, 2 ♀♀, same locality (350–400 m alt.), 3–V–2001, S. YAMASHITA, Y. OKUDA & K. ITÔ leg.; 4 ♂♂, 7 ♀♀, same locality, 5–VIII–2001, S. YAMASHITA leg.; 3 ♂♂, same locality, 23–XI–2001, A. SOUMA leg.; 2 ♂♂, same locality, 11–VIII–2002, H. ÔHIRA leg.; 7 ♂♂, 2 ♀♀, same locality, 21–VII–2003, H. ASHIDA leg.; 2 ♂♂, 1 ♀, Sanaka (300 m alt.), Asago-chô, Hyôgo Prefecture, 24–VI–2001, A. SOUMA leg.; 2 ♂♂, 1 ♀, same locality, 25–V–2002, A. SOUMA leg.

Notes. This species has previously been known from only an abandoned mine adit in Takinoya. The specimens reported here were obtained from the upper hypogean habitats at streamsides in three localities. The Kasasugi-tôge, the second locality, lies at the source of the Mikobata-gawa River, a western branch of the upstream portion of the Maruyama-gawa River and 8 km south-southwest of Takinoya. The Kasasugi-tôge specimens have a little slenderer pronotum with narrower base on an average than that of Takinoya specimens, though the other features are identical in both the populations. The body proportions are as follows: PW/HW 1.40–1.43 (M 1.41), PW/PL 1.06–1.10 (M 1.08), PW/PA 1.41–1.46 (M 1.44), PW/PB 1.34–1.40 (M 1.37), PB/PA 1.03–1.09 (M 1.05), EW/PW 1.77–1.84 (M 1.80); EL/PL 2.83–3.00 (M 2.90); EL/EW 1.47–1.54 (M 1.49). The third locality Sanaka is in the Sanaka-gawa drainage area, which is a branch of the Mikobata-gawa, and is located between the Kasasugi-tôge and Takinoya. The body proportions as well as male genitalic features of Sanaka specimens are completely identical with those of Takinoya specimens.

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要 約

芦田 久：兵庫県のフジタメクラチビゴミムシ系（第1報）—円山川流域の2新種—。——兵庫県中央部から北へ流れる円山川流域のナガチビゴミムシ属オニメクラチビゴミムシ群を調査したところ、フジタメクラチビゴミムシ系の2新種が見いだされたので、本論文において以下のように命名、記載した。タタラギメクラチビゴミムシ *Trechiana* (s. str.) *latilobatus* ASHIDA, sp. nov. は円山川上流部の右岸地域に分布し、基準産地の朝来町多々良木のほか、生野町黒川、生野町銀山湖畔に産する。オオヤメクラチビゴミムシ *T.* (s. str.) *oja* ASHIDA, sp. nov. は、円山川の支流である大屋川流域と明延川流域に分布し、基準産地の大屋町明延のほか、大屋町天滝溪谷と大屋町横行溪谷に産する。また、マチオクメクラチビゴミムシ *T.* (s. str.) *cuspidatus* S. UENO は養父町建屋の廃坑から記載された種であるが、円山川上流部の左岸側の支流、神子畑川流域と佐中川流域にも分布することが明らかになったので、採集記録を報告した。

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